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Declarations under Rule 4.17:

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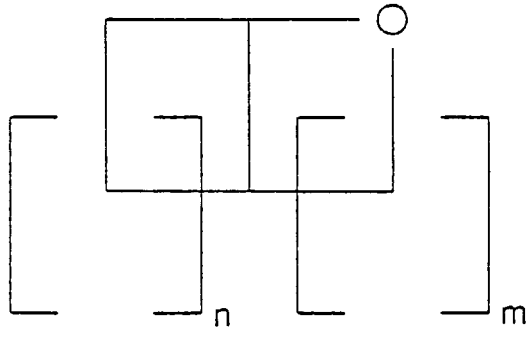
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(54) Title: AN ULTRALOW DIELECTRIC CONSTANT MATERIAL AS AN INTRALEVEL OR INTERLEVEL DIELECTRIC IN A SEMICONDUCTOR DEVICE



where m = 0 to 5 and n = 0 to 10

(57) Abstract: There is provided a thermally stable ultralow dielectric constant film comprising Si, C, O and H atoms and having a covalently bonded tri-dimensional network structure and a dielectric constant of not more than 2.6. The dielectric constant film may additionally have a covalently bonded ring network. The covalently bonded tri-dimensional (i.e., three dimensional) network structure comprises Si-O, Si-C, Si-H, C-H and C-C covalent bonds and may optionally contain F and N. In the film, the Si atoms may optionally be partially substituted with Ge atoms. The dielectric constant film has a thickness of not more than 1.3 micrometers and a crackpropagation velocity in water of less than 10-10 meters per second. There is further provided a back-end-of-the-line (BEOL) interconnect structure comprising the inventive dielectric film as a BEOL insulator, cap or hardmask layer.

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